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Author(s): Paris, Mark W.  
Grohs, Evan

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# Strongly Self-Interacting Spectra

W20\_qburst: 2020-02-26

Precision early universe simulations  
to constrain nuclear reactions and  
beyond standard model physics

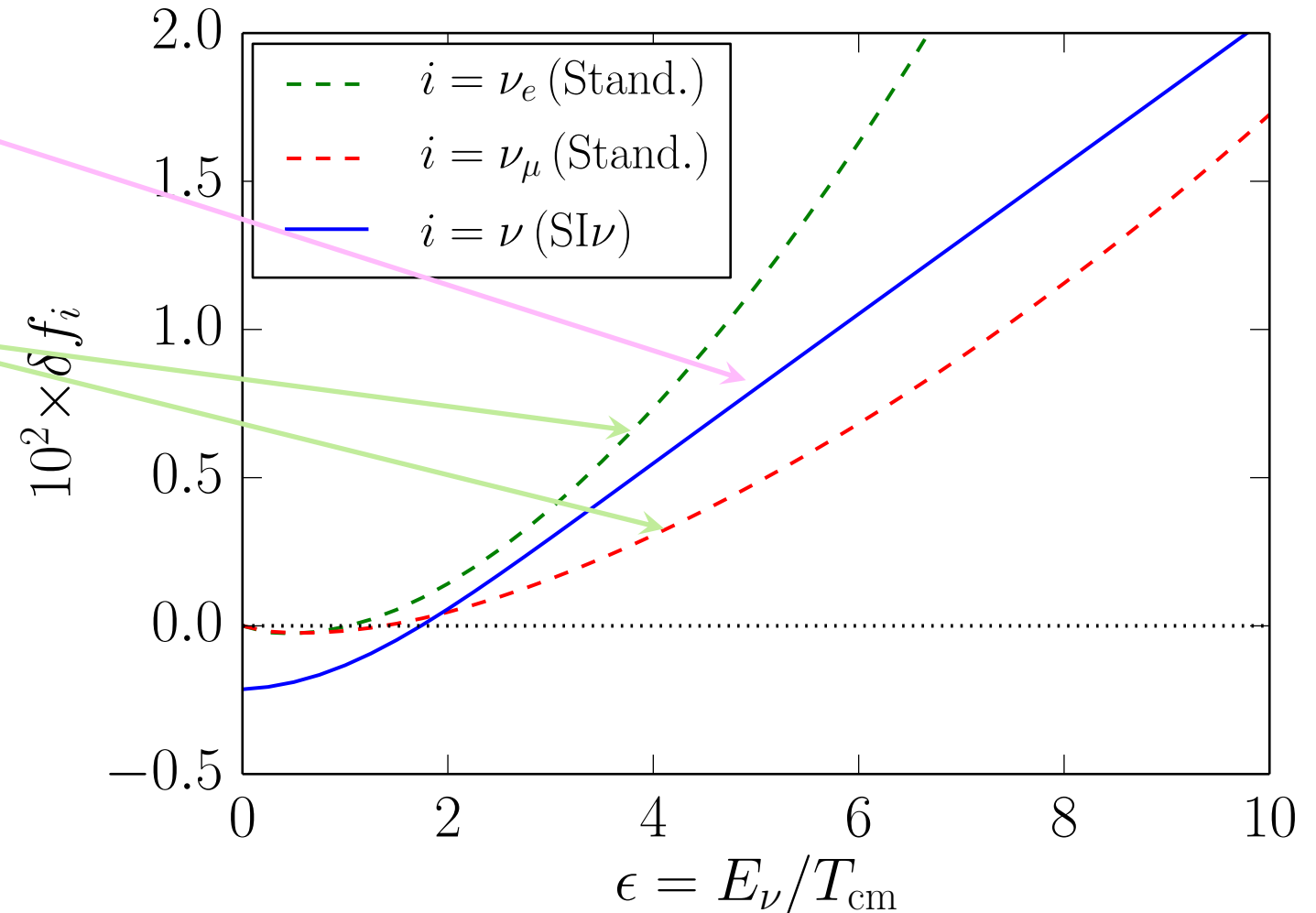
SI $\nu$  maintain Fermi-Dirac  
occupation probabilities

Spectra from standard-  
cosmology calculation

$$N_{\text{eff}} = 3.045 \uparrow$$

$$\delta Y_{\text{P}} \simeq 4 \times 10^{-4}$$

$$\delta(\text{D}/\text{H}) \simeq 2 \times 10^{-4}$$



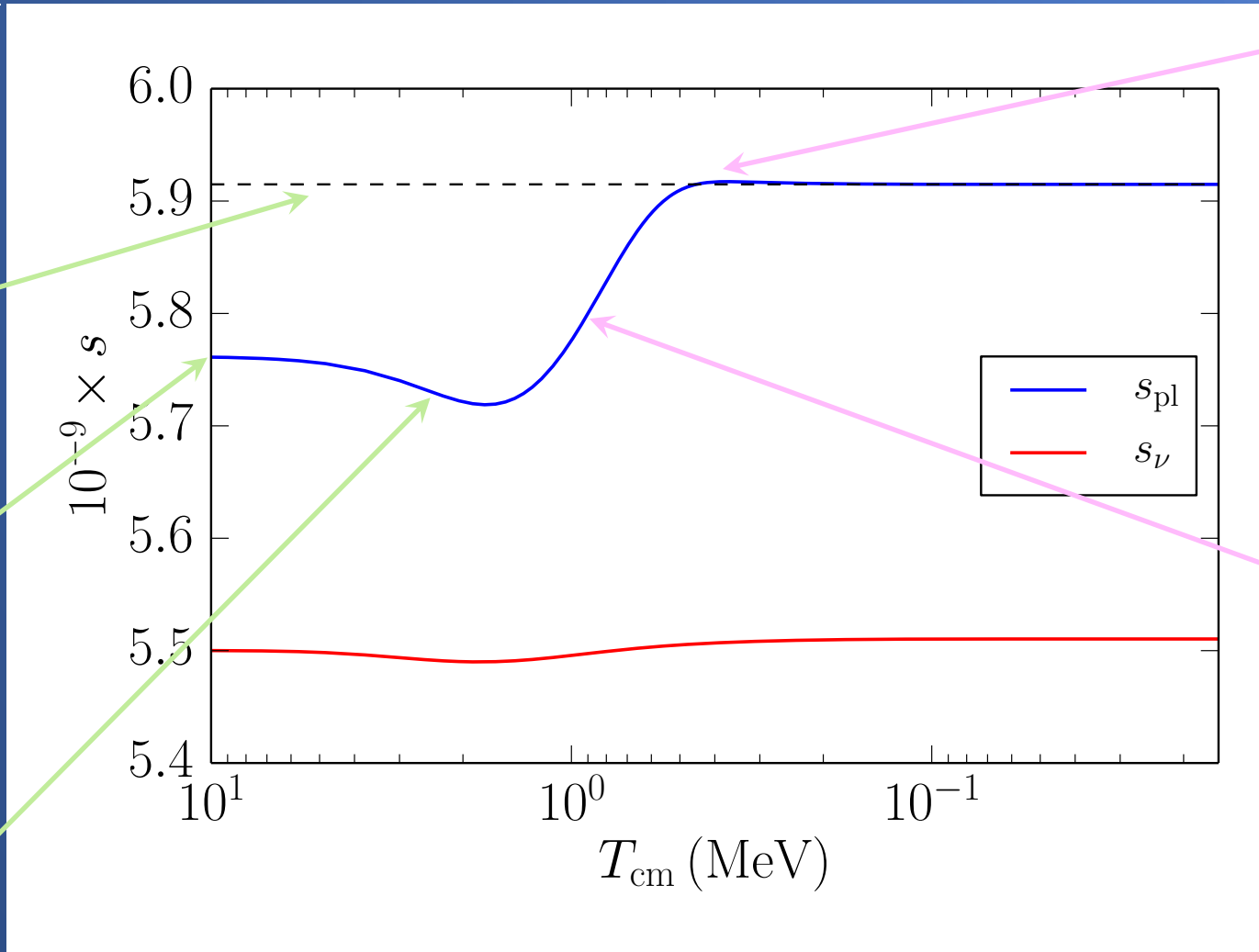
# Dark-Photon Induced Entropy Dilution

W20\_qburst: 2020-02-26  
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$$m_{A'} = 10 \text{ MeV}$$
$$\kappa = 2 \times 10^{-10}$$

CMB-  
inferred  
value  
Initial  
high baryon  
density

DP  
production



Weak  
decoupling  
vestige

DP  
decay